UNITED STATES PATENT AND TRADEMARK OFFICE

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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/600,342	TAKEYA, KAZUTOSHI
	Examiner	Art Unit
	Michael J. Hicks	2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *9/23/03; 12/19/03; 1/22/04*

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-20 pending in the instant application.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claim 19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 19 contains language that describes "another document control apparatus"

with which attributes are shared, but makes no reference to a first, or original document

control apparatus. This leaves question as to where the "attribute sharing unit" which

performs this function resides. For this reason, the claim is found to be indefinite.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-4, 6-11, and 13-20 rejected under 35 U.S.C. 103(a) as being

unpatentable over Anderson et al. ("Replication, Consistency, and Practicality: Are These Mutually

Exclusive?", SIGMOD Conference, Pgs. 484-495; 1998, ACM and referred to hereinafter as Anderson) in

view of Lindblad et al. (U.S. Pre Grant Publication Number 2004/0060006 and referred to hereinafter

as Lindblad).

As per Claim 1, Anderson discloses control apparatus that can share with

another control apparatus an attribute attached to a document (e.g. a document stored in a

database), comprising: an attribute sharing unit that shares said attribute with said other

control apparatus (i.e. *"The database consists of data distributed over a set of site. Data may be*

replicated to any degree up to and including full replication of data at all sites. For each data item, there

is a unique site, called the primary site, that is responsible for updates to the data item." The preceding

text excerpt clearly indicates that the data is replicated/shared at many sites. In this case each separate

site/database comprises its own control apparatus, which is illustrated by the fact that each data item has

a primary site, which shares it via an attribute sharing unit.) (Page 485, Column 1, Paragraph 5); an edit

processing unit that edit processes said attribute (i.e. *"For each data item, there is a unique site,*

called the primary site, that is responsible for updates to the data item." The preceding text excerpt clearly

indicates that an edit processing unit exists that updates/edit processes data items/attributes.) (Page 485,

Column 1, Paragraph 5); and a switching unit that determines whether said attribute is

shared with said other control apparatus by said attribute sharing unit (i.e. *"For each data*

item, there is a unique site, called the primary site, that is responsible for updates to the data item. The

copy of the data item at the primary site is referred to as the primary copy, and all other copies are

referred to as secondary copies." The preceding text excerpt clearly indicates that the site ate which a

primary copy of a data item/attribute exists is responsible for determining whether secondary copies exist

in order to control update operations on that data item/attribute.) (Page 485, Column 1, Paragraph 5)

and, based on the determination by said switching unit, controls edit processing on said

attribute by said edit processing unit (i.e. *"...each write operation on a data item must be performed first on the data item's primary copy. Consequently, if a transaction submits a write operation on a primary data item locally, the lock will not be granted until there is no transaction reading the data item at any site."* The preceding text excerpt clearly indicates that an apparatus exists to control updates/edit processing when it is determined that a data item is shared/distributed.) (Page 486, Column 1, Paragraph 5).

Anderson fails to disclose that the control apparatus is explicitly a document control apparatus.

Lindblad discloses that the control apparatus is a document control apparatus (i.e. *"In an XML handling system, point updates to an element of an XML document stored in the database is possible."* The preceding text excerpt clearly indicates that the control apparatus is designed to work with an XML document database to perform attribute/element updates.) (Abstract).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Lindblad to include the control apparatus being a document control apparatus with the motivation of updating elements (e.g. attributes) of an XML document stored in an XML document database (Lindblad, Abstract).

As per Claim 2, Anderson discloses an attribute identification information setting unit that sets attribute identification information of said attribute for identifying said attribute (i.e. *"...each write operation on a data item must be performed first on the data item's primary copy."* The preceding text excerpt clearly indicates that the data items may be written to (e.g. updated). Note that a data item is an entry in the database and therefore contains not only attribute information for the entry, but also identification information as well, which may be updated with the data item.) (Page

486, Column 1, Paragraph 5); and an inhibiting unit that determines whether, if said attribute

is edited by said edit processing unit, said attribute identification information setting unit

needs to change said attribute identification information set for identifying said attribute,

and, based on the determination by said inhibiting unit, causes said edit processing unit

to not edit said attribute (i.e. *"This is achieved by granting the transaction that updates the primary*

copy of d a lock which is not released until all data replicas have been updated." The preceding text

excerpt clearly indicates that when an operation is being performed in which the attribute identification

information of the data item is to be changed, the inhibiting unit will recognize this and prevent any

additional changes to the data item, such as those which may be performed by the edit processing unit, to

occur with a lock, which is not released until the original write operation (e.g. that to the identification

information) completes.) (Page 486, Column 1, Paragraph 5).

As per Claim 3, Anderson discloses an attribute identification information setting

unit that sets attribute identification information of said attribute for identifying said

attribute (i.e. *"...each write operation on a data item must be performed first on the data item's primary*

copy." The preceding text excerpt clearly indicates that the data items may be written to (e.g. updated).

Note that a data item is an entry in the database and therefore contains not only attribute information for

the entry, but also identification information as well, which may be updated with the data item.) (Page

486, Column 1, Paragraph 5); and a displaying unit that indicates whether the edit

processing by said edit processing unit changes said attribute identification information

of said attribute (i.e. *"In all three protocols that we evaluate, a transaction Ti can be in one of the*

following four global states...completed, if at each site at which Ti executed, Ti has committed and it is

not preceded in the local serialization order by any transaction that has not completed." The preceding

text excerpt clearly indicates that a mechanism is in place which indicates whether or not the

transaction/edit processing changes the data item (e.g. the data item includes attribute identification

information).) (Page 485, Column 2, Paragraph 2).

As per Claim 4, Anderson discloses an attribute identification information setting

unit that sets attribute identification information of said attribute for identifying said

attribute (i.e. *"...each write operation on a data item must be performed first on the data item's primary*

copy." The preceding text excerpt clearly indicates that the data items may be written to (e.g. updated).

Note that a data item is an entry in the database and therefore contains not only attribute information for

the entry, but also identification information as well, which may be updated with the data item.) (Page

486, Column 1, Paragraph 5); and an edit processing informing unit that informs, if edit

processing by said edit processing unit changes said attribute identification information

of said attribute, said other documents control apparatus of information of said edit

processing so that said other documents control apparatus can execute an identical edit

processing on said attribute (i.e. *"This is achieved by granting the transaction that updates the*

primary copy of d a lock which is not released until all data replicas have been updated." The preceding

text excerpt clearly indicates that any update/write/edit processing performed on a data item/attribute on

one control apparatus will be performed identically on all other control apparatuses which hold that data

item/attribute.) (Page 486, Column 1, Paragraph 5).

As per Claim 6, Anderson discloses an attribute identification information setting

unit that sets attribute identification information of said attribute for identifying said

attribute (i.e. *"...each write operation on a data item must be performed first on the data item's primary*

copy." The preceding text excerpt clearly indicates that the data items may be written to (e.g. updated). ·

Note that a data item is an entry in the database and therefore contains not only attribute information for

the entry, but also identification information as well, which may be updated with the data item.) (Page

486, Column 1, Paragraph 5); wherein said edit processing unit, if edit processing by said

edit processing unit that changes said attribute identification information of said attribute

is requested, prevents said attribute from changing (i.e. *"This is achieved by granting the*

transaction that updates the primary copy of d a lock which is not released until all data replicas have

been updated." The preceding text excerpt clearly indicates that when an operation is being performed on

the data item which is already causing the data item to be changed, any additional changes to the data

item, such as those which may be performed by the edit processing unit to change attribute identification

information for the data item, are prevented with a lock which is not released until the original write

operation completes.) (Page 486, Column 1, Paragraph 5).

As per Claim 7, Anderson discloses a document copying unit that copies said

document to said other documents control apparatus (i.e. *"The database consists of data*

distributed over a set of site. Data may be replicated to any degree up to and including full replication of

data at all sites. For each data item, there is a unique site, called the primary site, that is responsible for

updates to the data item." The preceding text excerpt clearly indicates that the data item/document is

replicated/copied across many other databases/control apparatuses.) (Page 485, Column 1, Paragraph

5).

Anderson fails to disclose a documents controlling unit that controls documents;

an attribute attaching unit that attaches said attribute to each document controlled by

said documents controlling unit, said attribute including an item type, a name of said

item type, and an item type value; an item type defining unit that assigns one or more

item types to said attribute attached to each document by said attribute attaching unit;

and a name attaching unit that attaches a name to said item type defined by said item

type defining unit.

Lindblad discloses a documents controlling unit that controls documents (i.e. *"In an*

XML handling system, point updates to an element of an XML document stored in the database is

possible." The preceding text excerpt clearly indicates that the database both stores and updates/controls

documents.) (Abstract); an attribute attaching unit that attaches said attribute to each

document controlled by said documents controlling unit, said attribute including an item

type, a name of said item type, and an item type value (i.e. *"Using such a structure for storing*

XML documents allows for dynamically updating an XML database of XML subtrees. Updates might

include XML node deletion, replacement, and insertion. Nodes can be inserted as preceding siblings,

following siblings, or as a new children nodes. Document nodes may be inserted or deleted. Nodes may

be element nodes, attribute nodes, text nodes, processing instruction nodes or comment nodes." The

preceding text excerpt along with figure 4A clearly indicates that not only do attribute nodes/attributes

exist which are attached to documents in the database/controlling unit, but that they also include (as

shown in figure 4A, which depicts a subtree representation of XML attribute data in the database) item

types, names of the item types, and values of the item types. Also note that this can be considered

Applicant Admitted Prior Art, as it is discussed in Page 3 of the Specification, Paragraphs 3-4.) (Figure

4A; Page 3, Paragraph 52); an item type defining unit that assigns one or more item types to

said attribute attached to each document by said attribute attaching unit (i.e. *"FIG. 4A*

illustrates a schematic representation 32 of XML document 30, wherein schematic representation 12 is a

shown as a tree (a connected acyclic simple directed graph) with each node of the tree representing an

element of the XML document or an element's content, attribute, the value, etc...Using such a structure

for storing XML documents allows for dynamically updating an XML database of XML subtrees. Updates

might include XML node deletion, replacement, and insertion. Nodes can be inserted as preceding

siblings, following siblings, or as a new children nodes. Document nodes may be inserted or deleted.

Nodes may be element nodes, attribute nodes, text nodes, processing instruction nodes or comment nodes." The preceding text excerpt along with figure 4A clearly indicates that at least one item type is assigned to each attribute, which is associated/attached to each document. Also note that this can be considered Applicant Admitted Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 3-4.) (Figure 4A; Page 3, Paragraphs 45, 52); a name attaching unit that attaches a name to said item type defined by said item type defining unit (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML document 30, wherein schematic representation 12 is a shown as a tree (a connected acyclic simple directed graph) with each node of the tree representing an element of the XML document or an element's content, attribute, the value, etc...Using such a structure for storing XML documents allows for dynamically updating an XML database of XML subtrees. Updates might include XML node deletion, replacement, and insertion. Nodes can be inserted as preceding siblings, following siblings, or as a new children nodes. Document nodes may be inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes, processing instruction nodes or comment nodes."* The preceding text excerpt along with figure 4A clearly indicates that the item types have designated/attached names. Also note that this can be considered Applicant Admitted Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 3-4.) (Figure 4A; Page 3, Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Lindblad to include a documents controlling unit that controls documents; an attribute attaching unit that attaches said attribute to each document controlled by said documents controlling unit, said attribute including an item type, a name of said item type, and an item type value; an item type defining unit that assigns one or more item types to said attribute attached to each document by said attribute attaching unit; and a name attaching unit that attaches a name to said item type defined by said item type defining unit with the

motivation of updating elements (e.g. attributes) of an XML document stored in an XML document database (Lindblad, Abstract).

As per Claim 8, Anderson fails to disclose an attribute storing unit that stores said attribute, said item type, the name of said item type, and said item type value.

Lindblad discloses an attribute storing unit that stores said attribute, said item type, the name of said item type, and said item type value (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML document 30, wherein schematic representation 12 is a shown as a tree (a connected acyclic simple directed graph) with each node of the tree representing an element of the XML document or an element's content, attribute, the value, etc...Using such a structure for storing XML documents allows for dynamically updating an XML database of XML subtrees. Updates might include XML node deletion, replacement, and insertion. Nodes can be inserted as preceding siblings, following siblings, or as a new children nodes. Document nodes may be inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes, processing instruction nodes or comment nodes."* The preceding text excerpt along with figure 4A clearly indicates that because the database/document control unit is able to update/control these attribute nodes/attributes (which include said item type, the name of said item type, and said item type value as disclosed above) there must be a mechanism (e.g. a structure for storing XML documents/an attribute storing unit) where the attributes are stored for recall and update. Also note that this can be considered Applicant Admitted Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 3-4.) (Figure 4A; Page 3, Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Lindblad to include an attribute storing unit that stores said attribute, said item type, the name of said item

type, and said item type value with the motivation of updating elements (e.g. attributes)

of an XML document stored in an XML document database (Lindblad, Abstract).

As per Claim 9, Anderson fails to disclose said edit processing unit retrieves and

edits said attribute, said item type, the name of said item type, and said item value

stored in said attribute storing unit.

Lindblad discloses said edit processing unit retrieves and edits said attribute,

said item type, the name of said item type, and said item value stored in said attribute

storing unit (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML document 30, wherein*

schematic representation 12 is a shown as a tree (a connected acyclic simple directed graph) with each

node of the tree representing an element of the XML document or an element's content, attribute, the

value, etc...Using such a structure for storing XML documents allows for dynamically updating an XML

database of XML subtrees. Updates might include XML node deletion, replacement, and insertion. Nodes

can be inserted as preceding siblings, following siblings, or as a new children nodes. Document nodes

may be inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes, processing

instruction nodes or comment nodes." The preceding text excerpt along with figure 4A clearly indicates

that the database/document control unit is able to update/control these attribute nodes/attributes (which

include said item type, the name of said item type, and said item type value as disclosed above) which

would include first retrieving them for updating. Also note that this can be considered Applicant Admitted

Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 4.) (Figure 4A; Page 3, Paragraphs

45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

said edit processing unit retrieves and edits said attribute, said item type, the name of

said item type, and said item value stored in said attribute storing unit with the

motivation of updating elements (e.g. attributes) of an XML document stored in an XML

document database (Lindblad, Abstract).

As per Claim 10, Anderson fails to disclose said attribute attaching unit correlates

said document controlled by said documents controlling unit with an attribute retrieved

from said attribute storing unit.

Lindblad discloses said attribute attaching unit correlates said document

controlled by said documents controlling unit with an attribute retrieved from said

attribute storing unit (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML document 30,*

wherein schematic representation 12 is a shown as a tree (a connected acyclic simple directed graph)

with each node of the tree representing an element of the XML document or an element's content,

attribute, the value, etc...Using such a structure for storing XML documents allows for dynamically

updating an XML database of XML subtrees. Updates might include XML node deletion, replacement,

and insertion. Nodes can be inserted as preceding siblings, following siblings, or as a new children nodes.

Document nodes may be inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes,

processing instruction nodes or comment nodes." The preceding text excerpt along with figure 4A clearly

indicates that the attribute node/attribute which is retrieved is correlated with an XML document/document

which is controlled by the database/document controlling unit in that the attribute node is either added

too, or already a part of the document from which it was retrieved.   Also note that this can be considered

Applicant Admitted Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 4.) (Figure 4A;

Page 3, Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

said attribute attaching unit correlates said document controlled by said documents

controlling unit with an attribute retrieved from said attribute storing unit with the

motivation of updating elements (e.g. attributes) of an XML document stored in an XML

document database (Lindblad, Abstract).

As per Claim 11, Anderson fails to disclose said document controlling unit stores

said document and said correlated attribute.

Lindblad discloses said document controlling unit stores said document and said

correlated attribute (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML document 30,*

wherein schematic representation 12 is a shown as a tree (a connected acyclic simple directed graph)

with each node of the tree representing an element of the XML document or an element's content,

attribute, the value, etc...Using such a structure for storing XML documents allows for dynamically

updating an XML database of XML subtrees. Updates might include XML node deletion, replacement,

and insertion. Nodes can be inserted as preceding siblings, following siblings, or as a new children nodes.

Document nodes may be inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes,

processing instruction nodes or comment nodes." The preceding text excerpt along with figure 4A clearly

indicates that the database/document controlling unit stores both the XML documents/documents and the

attribute nodes/attribute node which they are correlated with (e.g. when the attribute node is either added

to the XML document or is edited it becomes a part of the XML document and is therefore correlated with

it). Also note that this can be considered Applicant Admitted Prior Art, as it is discussed in Page 3 of the

Specification, Paragraph 3-4.) (Figure 4A; Page 3, Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

said document controlling unit stores said document and said correlated attribute with

the motivation of updating elements (e.g. attributes) of an XML document stored in an

XML document database (Lindblad, Abstract).

As per Claim 13, Anderson fails to disclose said attribute storing unit further

stores information indicating reference to said attribute, said item type, the name of said

item type, and said item value.

Lindblad discloses said attribute storing unit further stores information indicating

reference to said attribute, said item type, the name of said item type, and said item

value *"FIG. 4A illustrates a schematic representation 32 of XML document 30, wherein schematic*

representation 12 is a shown as a tree (a connected acyclic simple directed graph) with each node of the

tree representing an element of the XML document or an element's content, attribute, the value,

etc...Using such a structure for storing XML documents allows for dynamically updating an XML database

of XML subtrees. Updates might include XML node deletion, replacement, and insertion. Nodes can be

inserted as preceding siblings, following siblings, or as a new children nodes. Document nodes may be

inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes, processing instruction

nodes or comment nodes." The preceding text excerpt along with figure 4A clearly indicates that the

database/document controlling unit stores both the XML documents/documents and information indicating

reference to the attribute nodes/attribute node (e.g. as the attribute information is part of the XML

document, it is inherently referenced with in the XML document, or may be referenced in text, instruction,

or comment nodes correlated with the same XML document) which they are correlated with (e.g. when

the attribute node is either added to the XML document or is edited it becomes a part of the XML

document and is therefore correlated with it).Also note that this can be considered Applicant Admitted

Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 3-4.) (Figure 4A; Page 3,

Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

said attribute storing unit further stores information indicating reference to said attribute,

said item type, the name of said item type, and said item value with the motivation of

updating elements (e.g. attributes) of an XML document stored in an XML document

database (Lindblad, Abstract).

As per Claim 14, Anderson fails to disclose said attribute storing unit further

stores information related to an item included in said attribute.

Lindblad discloses said attribute storing unit further stores information related to

an item included in said attribute (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML*

document 30, wherein schematic representation 12 is a shown as a tree (a connected acyclic simple

directed graph) with each node of the tree representing an element of the XML document or an element's

content, attribute, the value, etc...Using such a structure for storing XML documents allows for

dynamically updating an XML database of XML subtrees. Updates might include XML node deletion,

replacement, and insertion. Nodes can be inserted as preceding siblings, following siblings, or as a new

children nodes. Document nodes may be inserted or deleted. Nodes may be element nodes, attribute

nodes, text nodes, processing instruction nodes or comment nodes." The preceding text excerpt along

with figure 4A clearly indicates that the database/document controlling unit stores both the XML

documents/documents and the attribute nodes/attribute node which they are correlated with (e.g. when

the attribute node is either added to the XML document or is edited it becomes a part of the XML

document and is therefore correlated with it). Note that information related to the attribute is stored as

either the XML document itself (which the attribute is part of), or may be stored in the processing

instruction nodes (which contain instruction to perform operations on the XML document which the

attribute is apart of) or in the comment nodes. Also note that this can be considered Applicant Admitted

Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 3-4.) (Figure 4A; Page 3,

Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

said attribute storing unit further stores information related to an item included in said

attribute with the motivation of updating elements (e.g. attributes) of an XML document

stored in an XML document database (Lindblad, Abstract).

As per Claim 15, Anderson fails to disclose said attribute storing unit further

stores information indicating correlation between said item included in said attribute and

location in which said item is stored.

Lindblad discloses said attribute storing unit further stores information indicating

correlation between said item included in said attribute and location in which said item is

stored (i.e. "FIG. 4A illustrates a schematic representation 32 of XML document 30, wherein schematic

representation 12 is a shown as a tree (a connected acyclic simple directed graph) with each node of the

tree representing an element of the XML document or an element's content, attribute, the value,

etc...Using such a structure for storing XML documents allows for dynamically updating an XML database

of XML subtrees. Updates might include XML node deletion, replacement, and insertion. Nodes can be

inserted as preceding siblings, following siblings, or as a new children nodes. Document nodes may be

inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes, processing instruction

nodes or comment nodes." The preceding text excerpt along with figure 4A clearly indicates that the

database/document controlling unit stores both the XML documents/documents and the attribute

nodes/attribute node which they are correlated with (e.g. when the attribute node is either added to the

XML document or is edited it becomes a part of the XML document and is therefore correlated with it),

and that they are able to be retrieved for updating as disclosed above. Because these attributes are part

of the XML document, and because they are able to be retrieved, the location information is therefore

included (e.g. the location is within the XML document which is being stored). Also note that this can be

considered Applicant Admitted Prior Art, as it is discussed in Page 3 of the Specification, Paragraph 3-4.)

(Figure 4A; Page 3, Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

said attribute storing unit further stores information indicating correlation between said

item included in said attribute and location in which said item is stored with the

motivation of updating elements (e.g. attributes) of an XML document stored in an XML

document database (Lindblad, Abstract).

As per Claim 16, Anderson fails to disclose an analysis processing unit that

retrieves said documents from said documents controlling unit and analyzes said

retrieved documents based on designated condition.

Lindblad discloses an analysis processing unit that retrieves said documents

from said documents controlling unit and analyzes said retrieved documents based on

designated condition (i.e. *"FIG. 4A illustrates a schematic representation 32 of XML document 30,*

wherein schematic representation 12 is a shown as a tree (a connected acyclic simple directed graph)

with each node of the tree representing an element of the XML document or an element's content,

attribute, the value, etc...Using such a structure for storing XML documents allows for dynamically

updating an XML database of XML subtrees. Updates might include XML node deletion, replacement,

and insertion. Nodes can be inserted as preceding siblings, following siblings, or as a new children nodes.

Document nodes may be inserted or deleted. Nodes may be element nodes, attribute nodes, text nodes,

processing instruction nodes or comment nodes...In a particular implementation, a database system

includes a set of functions that can be invoked to affect an update (i.e., an addition, deletion or

modification)." The preceding text excerpt along with figure 4A clearly indicates that the

database/document control unit is able to update/control these attribute nodes/attributes (which include

said item type, the name of said item type, and said item type value as disclosed above) which would

include first retrieving them for updating. Note that the XML documents are analyzed, and subsequently

modified based on a designated condition (e.g. the addition, deletion, or modification operation which is to

be performed). Also note that this can be considered Applicant Admitted Prior Art, as it is discussed in

Page 3 of the Specification, Paragraph 4.) (Figure 4A; Page 3, Paragraphs 45, 52).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

an analysis processing unit that retrieves said documents from said documents

controlling unit and analyzes said retrieved documents based on designated condition

with the motivation of updating elements (e.g. attributes) of an XML document stored in

an XML document database (Lindblad, Abstract).

As per Claim 17, Anderson discloses an attribute shared by said attribute sharing

unit with said other documents control apparatus, the attribute including information for

identifying said other documents control apparatus (i.e. *"The database consists of data*

distributed over a set of site. Data may be replicated to any degree up to and including full replication of

data at all sites. For each data item, there is a unique site, called the primary site, that is responsible for

updates to the data item...When the primary copy of a data item is updated, the new value must be

propagated to all secondary copies of that data item." The preceding text excerpt clearly indicates that if

the primary site is to propagate a change to all other sites with that data item, there must exist some

attribute by which the primary site is to identify and transmit data to secondary sites/other data control

apparatuses.) (Page 485, Column 1, Paragraphs 5-6).

As per Claim 18, Anderson discloses a documents control system, comprising a

plurality of documents control apparatuses connected via a network, each documents

control apparatus being as claimed in claim 1 (i.e. *"The database consists of data distributed*

over a set of site. Data may be replicated to any degree up to and including full replication of data at all

sites. For each data item, there is a unique site, called the primary site, that is responsible for updates to

the data item." The preceding text excerpt clearly indicates that the data is replicated/shared at many

sites. In this case each separate site/database comprises its own control apparatus (e.g. forming a

plurality of control apparatuses), which is illustrated by the fact that each data item has a primary site, with

which it shares attributes via an attribute sharing unit. Note that the distributed database as a whole can

be considered the control system.) (Page 485, Column 1, Paragraph 5).

Anderson fails to disclose that the control system is explicitly a document control

system.

Lindblad discloses that the control apparatus in each of the distributed databases

is a document control apparatus (i.e. *"In an XML handling system, point updates to an element of*

an XML document stored in the database is possible." The preceding text excerpt clearly indicates that

the control apparatus is designed to work with an XML document database to perform attribute/element

updates. If all of the distributed databases in the control system were designed in this manner then the

control system as a whole would be a document control system.) (Abstract).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Anderson with the teachings of Lindblad to include

the control apparatus being a document control apparatus with the motivation of

updating elements (e.g. attributes) of an XML document stored in an XML document

database (Lindblad, Abstract).

As per Claim 19, Anderson discloses a computer readable recording medium,

storing a computer program that causes a computer to function as: an attribute sharing

unit that shares an attribute with another control apparatus (i.e. *"The database consists of*

data distributed over a set of site. Data may be replicated to any degree up to and including full

replication of data at all sites. For each data item, there is a unique site, called the primary site, that is

responsible for updates to the data item." The preceding text excerpt clearly indicates that the data is

replicated/shared at many sites. In this case each separate site/database comprises its own control

apparatus, which is illustrated by the fact that each data item has a primary site, which shares it via an

attribute sharing unit.) (Page 485, Column 1, Paragraph 5); and an edit processing unit (i.e. *"For*

each data item, there is a unique site, called the primary site, that is responsible for updates to the data

item." The preceding text excerpt clearly indicates that an edit processing unit exists that updates/edit

processes data items/attributes.) (Page 485, Column 1, Paragraph 5) that switches, depending on

whether said attribute sharing unit shares said attribute with said other control

apparatus, edit processing on said attribute (i.e. *"Consequently, if a transaction submits a write*

operation on a primary data item locally, the lock will nor be granted until there is no other transaction

reading the data item at any site. Thus, read and update operations conflict at the primary site of the data

item." The preceding text excerpt clearly indicates that if the data item/attribute were not shared, the edit

processing unit would not have to wait for reads from other sites to complete to perform a write operation

on the data item/attribute, therefore changing/switching the operation of edit processing on the attribute.

Also note that if the data item/process were not shared, there would be no need to take steps to replicate

the data item/attribute to other sites/data control apparatuses, therefore changing updating/edit

processing on the data item/attribute.) (Page 486, Column 1, Paragraph 5).

Anderson fails to disclose that the control apparatus is explicitly a document control apparatus.

Lindblad discloses that the control apparatus is a document control apparatus (i.e. *"In an XML handling system, point updates to an element of an XML document stored in the database is possible."* The preceding text excerpt clearly indicates that the control apparatus is designed to work with an XML document database to perform attribute/element updates.) (Abstract).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Lindblad to include the control apparatus being a document control apparatus with the motivation of updating elements (e.g. attributes) of an XML document stored in an XML document database (Lindblad, Abstract).

As per Claim 20, Anderson discloses a method of controlling an attribute of a document comprising the steps of: receiving a request for edit processing on an attribute (i.e. *"For each data item, there is a unique site, called the primary site, that is responsible for updates to the data item...The site at which transaction Ti is submitted is called the origination site of Ti."* The preceding text excerpt clearly indicates that a request for a transaction/edit processing on a data item/attribute is requested, and that the request is sent to the primary site of the data item/attribute.) (Page 485, Column 1, Paragraphs 5-6); determining whether said attribute is shared among a plurality of documents control apparatuses (i.e. *"For each data item, there is a unique site, called the primary site, that is responsible for updates to the data item. The copy of the data item at the primary site is referred to as the primary copy, and all other copies are referred to as secondary copies."* The preceding text excerpt clearly indicates that the site ate which a primary copy of a data item/attribute exists is responsible for determining whether secondary copies exist in order to control update operations

on that data item/attribute.) (Page 485, Column 1, Paragraph 5) and, if so shared, whether said

edit processing changes attribute identification information of said attribute (i.e. *"In all three*

protocols that we evaluate, a transaction Ti can be in one of the following four global states...completed,

if at each site at which Ti executed, Ti has committed and it is not preceded in the local serialization order

by any transaction that has not completed." The preceding text excerpt clearly indicates that a

mechanism is in place which indicated whether or not the transaction/edit processing changes the data

item (e.g. the data item includes attribute identification information).) (Page 485, Column 2, Paragraph 2),

and switching over, if said attribute is shared among the plurality of control apparatuses

and said edit processing changes attribute identification information of said attribute,

said edit processing to an edit processing that does not change said attribute

identification information (i.e. *"Until an update is completed for all replicas of data item d, no other*

transaction can read d. This is achieved by granting the transaction that updates the primary copy of d a

lock which is not released until all data replicas have been updated." The preceding text excerpt clearly

indicates that during an update operation, (which includes update operations to attribute identification

information), read operations (e.g. an edit processing that does not change attribute identification

information) from secondary sites/control apparatuses (e.g. sites the data item/attribute identification

information is shared with) is prohibited, but when the update operation completes, as above, (e.g. when

it is determined that the edit processing changes attribute identification information) operations/edit

processing are switched over to read operations (e.g. an edit processing that does not change attribute

identification information).) (Page 486, Column 1, Paragraph 5).

Anderson fails to disclose that the control apparatus is explicitly a document

control apparatus.

Lindblad discloses that the control apparatus is a document control apparatus (i.e.

"In an XML handling system, point updates to an element of an XML document stored in the database is

possible." The preceding text excerpt clearly indicates that the control apparatus is designed to work with an XML document database to perform attribute/element updates.) (Abstract).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Lindblad to include the control apparatus being a document control apparatus with the motivation of updating elements (e.g. attributes) of an XML document stored in an XML document database (Lindblad, Abstract).

6.   Claims 5 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. ("Replication, Consistency, and Practicality: Are These Mutually Exclusive?", SIGMOD Conference, Pgs. 484-495; 1998, ACM and referred to hereinafter as Anderson) in view of Lindblad et al. (U.S. Pre Grant Publication Number 2004/0060006 and referred to hereinafter as Lindblad) as applied to Claim 1 above, and further in view of Broderson et al (U.S. Pre Grant Publication Number 2033/0105782 and referred to hereinafter as Broderson).

As per Claim 5, Anderson discloses an attribute identification information setting unit that sets attribute identification information of said attribute for identifying said attribute (i.e. *"...each write operation on a data item must be performed first on the data item's primary copy."* The preceding text excerpt clearly indicates that the data items may be written to (e.g. updated). Note that a data item is an entry in the database and therefore contains not only attribute information for the entry, but also identification information as well, which may be updated with the data item.) (Page 486, Column 1, Paragraph 5).

Anderson fails to disclose an edit history information generating unit that generates, if edit processing by said edit processing unit changes said attribute identification information of said attribute, edit history information of said edit processing; and an edit history information transmitting unit that transmits said edit history information to said other documents control apparatus.

Broderson discloses an edit history information generating unit that generates, if edit processing by said edit processing unit changes said attribute identification information of said attribute, edit history information of said edit processing (i.e. "*The function of a log on a node is to record a transaction for propagation to Central Computer system and thence to other nodes as required.*" The preceding text excerpt clearly indicates that all transaction/edit processing that occurs (including edit processing of attribute identification information) is logged (e.g. an edit history is created).) (Page 6, Paragraph 65); and an edit history information transmitting unit that transmits said edit history information to said other documents control apparatus (i.e. "*The function of a log on a node is to record a transaction for propagation to Central Computer system and thence to other nodes as required.*" The preceding text excerpt clearly indicates that the transaction log/edit history is subsequently propagated/transmitted to said other control apparatuses.) (Page 6, Paragraph 65).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Broderson to include disclose an edit history information generating unit that generates, if edit processing by said edit processing unit changes said attribute identification information of said attribute, edit history information of said edit processing; and an edit history information transmitting unit that transmits said edit history information to said other

documents control apparatus with the motivation to permit updates to be coordinated between users of a central database and partially replicated databases. (Broderson, Page 1, Paragraph 11).

As per Claim 12, Anderson fails to disclose a document attribute edit history storing unit that, when said edit processing changes said attribute identification information of said attribute, stores said edit history information of said edit processing.

Broderson discloses a document attribute edit history storing unit that, when said edit processing changes said attribute identification information of said attribute, stores said edit history information of said edit processing (i.e. *"The function of a log on a node is to record a transaction for propagation to Central Computer system and thence to other nodes as required."* The preceding text excerpt clearly indicates that as transactions/edit processing occurs (including edit processing that edit processes attribute identification information) information about the transactions/edit processes is stored in the transaction log/edit history.) (Page 6, Paragraph 65).

It would have been obvious to one skilled in the art at the time of Applicants invention to modify the teachings of Anderson with the teachings of Broderson to include a document attribute edit history storing unit that, when said edit processing changes said attribute identification information of said attribute, stores said edit history information of said edit processing with the motivation to permit updates to be coordinated between users of a central database and partially replicated databases. (Broderson, Page 1, Paragraph 11).

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Hicks whose telephone number is (571) 272-2670. The examiner can normally be reached on Monday - Friday 8:30a - 5:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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